

NEW NEMESTRINIDÆ (DIPTERA) FROM RHODESIA  
AND NEW GUINEA

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The curious and apparently archaic family Nemestrinidæ is rather abundantly represented in South Africa, but very few species are known north of the Orange and Limpopo Rivers. It is, therefore, of much interest to record three new forms, of the genera *Prosæca* and *Stenobasipteron*, which have been recently discovered in Southern Rhodesia. I wish to thank Dr. G. Arnold, Curator of the Rhodesia Museum, Bulawayo, for the opportunity of studying these insects.

On this occasion I shall also describe a new species of *Nyctrimyia*, from New Guinea, entrusted to me some time ago by the Paris Museum.

***Prosœca rhodesiensis* sp. nov.**

Type female from Matopos, Southern Rhodesia, April 17, 1923 (R. Stevenson Coll.); allotype male from Mt. Bambata, Matopos, Southern Rhodesia, March 23, 1924 (without collector.) Both in the collection of the Rhodesia Museum, Bulawayo.

A robust, black species, covered with dull grey tomentum; vertex and dorsum of thorax with short black hair; pilosity otherwise greyish white, very long and dense on the under side; a dorsal row of brownish black, dull spots on the middle of abdomen; legs dark clove brown. Wings of normal shape in the male, with all longitudinal veins turned up at apex; brownish along costa and gradually fading into the hyaline hind margin.

*Female*: Integument black, faintly clove brown at extreme lower apex of face. Antennæ, palpi, and proboscis black; the proboscis faintly clove brown toward the base. Legs very dark clove brown, the tarsi and claws almost black.

Body short pilose above, densely hairy on the ventral side. Vertex with erect, black hairs as far as the anterior ocellus; the remainder of the head with white pile, which is extremely short

on the front, longer on the face and posterior orbits, and very long and dense on the cheeks. Dorsum of thorax with moderately long and rather sparse, erect, black pile; scutellum with similar, but somewhat longer, black hair, except behind its posterior margin, where the pilosity is greyish white; sides and ventral face of thorax densely covered with long, soft, greyish white hairs, which extend as a distinct white stripe above the base of the wing. Abdomen dorsally with sparse and short, erect, black pile; at the base and along the hind margins of the segments there is a mixture of greyish white hairs; ventrally the pilosity is longer, denser, greyish white, and generally appressed. Coxæ and femora with long, greyish white hairs; the pilosity of the tibiæ and tarsi extremely short, black; the longer setæ at the tip of the tibiæ also black. Except where the pilosity is very long and dense, the integument is covered with a dull, ashy grey bloom; on this, one may see, in the proper light, two wide, longitudinal stripes of blackish pruinescence in the anterior half of the thoracic dorsum, on each side of, and close to, the middle line. Brownish black pruinescence also forms a row of median, rounded, dull spots on the second, third, and fourth abdominal tergites; each spot being located close to the anterior margin. In the female I have seen, these spots are quite well marked.

Head large, flattened, much broader than the thorax; semi-elliptical in profile; kidney-shaped and nearly one and one-half times as wide as high when seen in front. Front rather narrow, widest at the insertion of the antennæ, where it measures about half the width of the eye; the inner orbits converge distinctly toward the anterior ocellus, where the front is only half as wide as at the antennæ. Vertex nearly parallel-sided. Ocellar protuberance elongate and low, but slightly separated from the inner orbits, with a transverse, saddle-shaped depression in the middle; ocelli placed in an isosceles triangle, the posterior ocelli being only about half as far from each other as from the anterior ocellus. Eyes bare. Antennæ short, small, placed on the sides of the face, close to the inner orbits; basal segment subcylindrical, slightly longer than wide, broadly truncate and somewhat emarginate at apex; second segment nearly as long as wide, about two-thirds the length of the first, squarely truncate

at apex, with rounded edges; third segment flattened, pear-shaped, but little shorter than the first and second segments together, twice as long as wide, broadest in its basal half and thence gradually narrowed to the truncate and slightly sinuate apex. Style longer than the whole antenna, very sharply three-jointed; the two basal divisions thick, of about equal length, together about two-thirds the length of the third antennal segment. Front slightly convex between ocelli and antennæ. Face moderately swollen as a whole, gradually slanting from between the antennæ to the oral margin, without grooves. The lower part of the head distinctly excavated between the cheeks. Proboscis of medium length, reaching about to the hind margin of the scutellum if supposed folded beneath the thorax; rather thick, especially in its basal half; directed downward, with a slight posterior slant. Palpi short and thick, three-jointed; the second segment much the longest; the apical segment bluntly truncate. Body quite broad and heavy. Thorax distinctly broader than thick; dorsum slightly wider than long; transverse suture quite deep on the sides over one-third of the width of the dorsum, continued as a shallow, oblique depression to near the scutellum. Scutellum large, semi-elliptical, cushion-shaped, its posterior margin separated from the disk by an impressed line. Abdomen broad and flat; the four basal segments together shorter than wide; the succeeding apical segments much narrower, decreasing in width, partly retractile within one another to form a telescope-shaped ovipositor; the last segment ends in two short, slender, straight, bluntly pointed lamellæ which are wider in their basal half (in profile). Legs stout and long; the tarsi especially thick; the hind basitarsus but little narrower than the hind tibia.

Wings rather long and narrow, much longer than the body, over three times as long as wide. Costal cell and extreme base of wing, as far as the branching of the fourth and fifth longitudinal veins, infusate, with a brownish yellow tinge; then fading into greyish in the first basal and subcostal cells and also along the costa to the tip of the wing; the remainder of the wing, including the alula, nearly hyaline. Veins dark clove brown or nearly black. Epaulet and basicosta clove brown; the epaulet

with a tuft of long, appressed, white hairs. Venation of the usual *Prosæca*-type; all the longitudinal veins turned upward to end before the apex of the wing; no cross-veins between the terminal branches of the fourth vein nor between the second and the upper branch of the third; fourth posterior cell sessile.

Length not including ovipositor (to apex of tergite 4), 16.5 mm; greatest width of abdomen, 8.5 mm; length of proboscis, 8.5 mm; length of wing, 21 mm; width of wing, 6 mm.

*Male.* Very similar to the female in every respect. The abdomen is more clove-brown than black, but this is probably due to the fact that the greyish bloom is not as well preserved in the specimen in hand; the dull, black spots on the middle of the abdomen are present, though not quite as distinct as in the female. The vertex is just a trifle narrower at the anterior ocellus than in the female; but the ocellar triangle is still much longer than wide behind. The wings are slightly wider and a little more infuscated than in the female; but there is no prominent thickening of the costa beyond the middle and the passage to the nearly hyaline hind portion of the wing is quite gradual. The venation is as in the female.

Total length, 18.5 mm.; greatest width of abdomen, 9 mm.; length of proboscis, 9 mm.; length of wing, 23 mm.; width of wing, 6.7 mm.

This species is closely related to *Prosæca beckeri* Lichtwardt, of which it was at first thought to be but a variation. Owing to the kindness of Dr. H. Brauns, I was able to examine a male of *P. beckeri* from Montagu Pass, George, Cape Province. It differs from the Rhodesian male in several structural peculiarities which, however, could not be gathered from published accounts. Thus the wing of *P. beckeri* is, in the male, prominently widened beyond the middle, the costa being there considerably thickened (length of wing, 21 mm.; width of wing, 6.5 mm.); the wing being shaped somewhat like that of the males of *Ommatius* (Asilidæ) and of *Stenobasipteron* (Nemestrinidæ). Such a structure of the wing is not found in the male of *P. rhodesiensis*. In addition, *P. beckeri* has the wing much darker in its anterior half; the vertex is quite broad, the ocellar tubercle shorter than wide, the two posterior ocelli being somewhat farther from each

other than from the anterior ocellus; the style is much shorter, being about as long as the whole antenna; there are also minor differences in the color of the pilosity, the hairs of the dorsum of the thorax being to a large extent greyish white, and there are two rows of blackish spots on the abdomen, instead of one row as in *P. rhodesiensis*.

**Stenobasipteron arnoldi** sp. nov.

Type female from Mt. Bambata, Matopos, Southern Rhodesia, March 23, 1924 (without collector); paratype female from the same locality and date. The type in the collection of the Rhodesia Museum; the paratype in my collection.

A slender, black species, covered with dull, cinereous tomentum; head and under side of abdomen paler; antennæ and legs dirty straw yellow; pilosity sparse; longer and denser on the ventral side; proboscis considerably longer than the body. Wings very long and narrow, with the usual venation for the genus, very slightly smoky, more infusate in the costal cell.

*Female.* Integument black on upper part of head and on dorsal face of thorax and abdomen. Face pale clove-brown. Sides of thorax blackish, with indistinct, yellowish brown blotches. Ventral face of abdomen pale dirty yellow. Antennæ yellowish brown, the last division of the style black. Palpi clove-brown. Proboscis black. Legs entirely pale testaceous; claws black.

Pilosity sparse (probably but partly preserved in the two specimens seen). Vertex, front and face with very few, but long, erect, black hairs; cheeks and posterior orbits densely covered with long, greyish white pile. Dorsum of thorax and scutellum with sparse, but rather long, erect, black hairs; sides and ventral face, as also under side of scutellum, with more abundant and longer, somewhat yellowish white pilosity. Dorsally on the abdomen the hairs are mostly black, except at the extreme base; the anterior third of the second tergite has a sparse, erect, long, black pilosity; the remainder of the dorsal side bears many scattered, extremely short, slanting, rather stiff, black hairs. Ventrally the abdomen is but poorly covered; there are a few,

short, appressed, somewhat silvery white hairs, which are more abundant toward the sides. Coxæ and femora with long, yellowish white pile; that of the tibiæ and tarsi extremely short, white; the under side of the tarsi with more abundant, reddish brown pile. The integument of the entire body is covered with a dull, dark ashy grey bloom; on the front and face the pruinescence has a slight yellowish tinge, and it is much paler, nearly white on the ventral side of the abdomen; there are no spots nor stripes on thorax or abdomen.

Head moderately flattened, much broader than the thorax; semi-elliptical seen from above; triangular in profile, due to the conically projecting face; kidney-shaped and nearly twice as wide as high in the middle, when seen in front. Front rather narrow, widest at the insertion of the antennæ, where it measures about half the width of the eye; inner orbits distinctly converging toward the anterior ocellus, where the front is but half as wide as at the antennæ. Sides of the vertex slightly diverging behind. Ocellar protuberance short and low, about as wide as long, but slightly separated from the inner orbits; ocelli placed in an equilateral triangle; anterior ocellus over twice the size of each of the posterior ocelli, transversely elliptical, occupying more than half the width of the front. Eyes bare. Antennæ (Fig. 1a) short, small, placed on the sides of the face, close to the

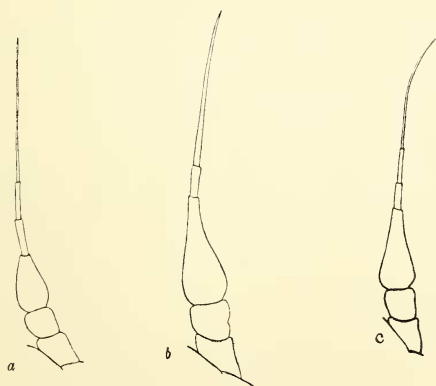


Fig. 1. *Stenobasipteron*. Right antenna drawn from the inner side: a, *S. arnoldi*; b, *S. difficile*; c, *S. gracile*.

inner orbits; basal segment cylindrical, nearly one and a half times as long as wide, squarely truncate at the apex; second segment a little over half the length of the first, about as long as wide, slightly broader at the apex which is broadly rounded off; third segment slightly flattened, short pear-shaped, but little longer than the first, and slightly over one and one-half times as long as wide, widest in its basal third and thence gradually narrowed to the straightly truncate apex. Style about twice the length of the whole antenna, sharply three-jointed; the two basal divisions together but little shorter than the second and third antennal segments; the second division somewhat longer than the first. Front very feebly convex between anterior ocellus and antennæ. Face much swollen, projecting anteriorly as a blunt cone, without grooves. The lower portion of the head is deeply and broadly excavated in the middle between the cheeks, the eyes continuing for about one-quarter their length below the oral margin. Proboscis very long and slender, reaching considerably beyond the tip of the abdomen when folded beneath the body, in which position it is in the type; while in the paratype it is directed downward with a slight anterior slant; labella thin and elongate. Palpi short and slender, distinctly three-jointed; the two apical segments much longer and of about equal length; the third truncate at apex. Body slender. Thorax about as broad as thick; dorsum distinctly longer than wide; transverse suture deep on the sides over less than one-third the width of dorsum, continued backward to near the scutellum. Scutellum large, semi-elliptical, cushion-shaped; its posterior margin faintly separated from the disk by an impressed line. Abdomen flattened dorsally, slightly wider than the thorax; the four basal segments together about as long as wide; the succeeding, apical segments much narrower, gradually decreasing in width, partly retractile as a telescope-shaped ovipositor. The last segment ends in two short, slender, straight, bluntly pointed lamellæ. Legs long and thin; femora slightly swollen toward the base, more distinctly so on the front legs; tips of tibiæ faintly thickened.

Wings very long and narrow, much longer than the body, over four times as long as wide. Costal margin nearly straight;

the posterior margin much constricted in its basal quarter, where a very narrow trace of the alula extends from the axillary excision to the base of the wing. Wings very faintly infusate all over; more distinctly yellowish grey in the costal cell and at the extreme base. Veins dark clove-brown; epaulet and basicosta nearly black; the epaulet mostly covered with black pile. Venation of the usual type of the genus; fourth posterior cell with a long petiole at base; sixth longitudinal vein faintly undulate (more so than in *S. gracile* Lichtwardt); no "bulla" at base of second vein; axillary vein not developed beyond axillary incision.

Length not including ovipositor (to apex of tergite 4), 10.5 mm.; greatest width of abdomen, 4.5 mm.; length of proboscis, 14.5 mm.; length of wing, 14 mm.; width of wing, 3.4 mm. In the paratype these measurements are respectively 11 mm.; 5 mm.; 16 mm.; 15.5 mm.; 4 mm.

This species is allied to *Stenobasipteron gracile* Lichtwardt, also of Southern Rhodesia. From published accounts alone, it would have been difficult to point out the differences. Fortunately, I was able to compare specimens of the two species. The proboscis is decidedly longer in *S. arnoldi*, being always much over body length; the wings are narrower (in a female of *S. gracile* they measure 14 by 4 mm.) and much less infuscated; the third segment of the antennæ is decidedly shorter (in *S. gracile* it is about twice as long as wide at base and amply as long as the two basal segments together).

### ***Stenobasipteron difficile* sp. nov.**

Type female from Cloudlands, 6,000 ft., Vumbu Mts., Southern Rhodesia, 6 to 17 April, 1923 (without collector). In the collection of the Rhodesia Museum.

A medium-sized, rather thickset, black species, covered with cinereous tomentum on the under side, with a black bloom on the upper side, the dorsal surface of the abdomen somewhat shiny. Antennæ and legs reddish brown; the last antennal segment and the hind tarsi darker. Pilosity moderately long and dense on head, thorax and base of abdomen, yellowish white



ventrally, pale russet dorsally. Proboscis about as long as the body. Wings moderately long, uniformly smoky all over.

*Female.* Integument black even on the face; scutellum clove-brown. Two basal segments of antennæ reddish clove-brown; the last segment much darker; the style black. Palpi clove-brown. Proboscis brownish black. Legs reddish clove-brown; the tip of the tibiæ and the tarsi more infuscated; the hind tarsi almost black; claws black.

Pilosity rather long and abundant on head, thorax, and base of abdomen. Vertex, front, and face with numerous, erect, black hairs; cheeks and posterior orbits with a long and dense beard of greyish white pile. Dorsum of thorax and scutellum uniformly covered with loose, erect, moderately long, reddish yellow pile, more russet on the scutellum; sides and ventral face with long and dense, greyish white hairs, more yellowish below the wings. Dorsally the abdomen bears on the first and basal half of second tergites long, erect, reddish yellow pile, similar to that of the thoracic dorsum; the remainder of the dorsal side bears many scattered, short and more or less appressed, black hairs; and in addition a very sparse, long, erect, black pilosity; ventrally there is on the sides a dense, yellowish white, matted pile, but the largest part of the sternites has but a very few, short, appressed, white hairs. Coxæ and femora with long, erect, greyish white pile; the hairs on the tibiæ and tarsi very short and black. The ground color of the integument on the ventral side of thorax and abdomen is completely hidden by a dull, cinereous white bloom. On head and dorsum of thorax the pruinescence is dull and very dark brown, somewhat more cinereous on the sides of the dorsum and on certain areas of front and face. The sides of the face rather shiny. On the dorsal face of the abdomen the pruinescence is velvety black, with a somewhat oily sheen, and there are two transverse, ill-defined spots of a yellowish grey, dull bloom near the anterior margin of the second, third and fourth tergites, so that the abdomen appears quite distinctly spotted.

Head moderately flattened, much broader than the thorax; semi-elliptical seen from above; in profile the face is moderately projecting, much less so than in *S. arnoldi*; when seen in front

the head is kidney-shaped and nearly twice as wide as high in the middle. Front rather wide, broadest at the insertion of the antennæ where it measures a little over half the width of the eye; inner orbits moderately converging toward the anterior ocellus, where the front is slightly over half as wide as at the antennæ. Sides of the vertex parallel. Ocellar tubercle short and flat, with a slight transverse depression below its middle, hardly separated by a notch from the inner orbits; ocelli placed in a short isosceles triangle, the posterior ocelli distinctly, but slightly, closer to each other than to the anterior ocellus; anterior ocellus larger than, though not quite twice the size of, a posterior ocellus, short elliptical, occupying a little less than one-third of the width of the front. Eyes bare. Antennæ (Fig. 1*b*) short, small, placed on the sides of the face, close to the inner orbits; basal segment cylindrical, nearly one and a half times as long as wide, squarely truncate at apex; second segment but little shorter than the first, slightly longer than wide, broadly truncate at apex; third segment much flattened, very elongate pear-shaped, over twice as long as wide, much longer than the two basal segments together, widest in its basal half and thence rather rapidly tapering to the straightly truncate, narrow apex. Style about the length of the whole antenna, only two-jointed; the basal division a little shorter than the second antennal segment. Front very feebly convex between anterior ocellus and antennæ. Face moderately swollen, forming a low, blunt cone, without grooves. The lower portion of the head is but slightly and very broadly excavated in the middle between the cheeks. Proboscis very long and slender, reaching about the tip of the abdomen when folded beneath the body; in the specimen in hand it is directed vertically downward, with the apical third curved forward; labella very thin and elongate. Palpi short and slender, three-jointed; the two apical segments much longer and of about equal length; the third obtuse at apex. Body rather thickset. Thorax about as wide as thick; dorsum nearly square; transverse suture deep on the sides over about one-third of the width of dorsum, continued backward to near the scutellum. Scutellum large, semi-elliptical, its posterior margin distinctly separated from the disk by an impressed line. Abdomen flat-

tened dorsally, much wider than the thorax; the four basal segments together much shorter than wide; the succeeding, apical segments much narrower, gradually decreasing in width, partly retractile as a telescope-shaped ovipositor. The last segment ends in two comparatively wide, long, straight, bluntly pointed lamellæ. Legs moderately heavy; femora slightly thickened, more distinctly swollen on the forelegs.

Wings moderately long and narrow, not quite four times as long as wide. Costal margin nearly straight; the posterior margin gradually narrowed in its basal quarter, where a narrow, but distinct alula extends from the axillary excision to the base of the wing. Wings distinctly and uniformly smoky; veins dark clove-brown; the epaulets and basicosta black; the epaulet with a few black hairs. Venation of the usual type of the genus; fourth posterior cell with a short petiole at the base; sixth longitudinal vein very slightly undulate (nearly as in *arnoldi*); no "bulla" at base of second vein; axillary vein not developed beyond axillary incision.

Length not including ovipositor (to apex of tergite 4), 11.5 mm.; greatest width of abdomen, 6.5 mm.; length of proboscis, 11.5 mm.; length of wing, 15 mm.; width of wing, 4 mm.

This species is exceedingly close to *Stenobasipteron gracile* Lichtwardt, much more so than *S. arnoldi*. There are, however, a number of differences: the body is more thickset; the legs are stouter; the anterior ocellus is smaller, not quite twice the size of a posterior ocellus; the third antennal segment has a different shape; the style is only two-jointed; the sixth longitudinal vein is quite straight; the lamellæ of the ovipositor are broader, etc. It is difficult to believe that these discrepancies are all due to individual variation. Moreover, the unknown male may show further characters.

### **Stenobasipteron gracile** Lichtwardt

The original description of this species (Deutsch. Ent. Zeitschr., 1910, p. 615) is extremely brief and is reproduced here for the benefit of Rhodesian entomologists. It is said to be so

similar to *S. wiedemanni* Lichtwardt, that only the differences are noted: "Smaller and more elegant in the whole build of the body; the color is markedly paler than in *S. wiedemanni* and has a more greyish tinge; while the uniformly colored surface of the wing is also more smoky grey, showing but a narrow, yellowish-brown stripe along the anterior margin. Sharp differences are the absence of the "bulla" in the wing of both sexes; the inequality in size of the ocelli, of which the anterior one is twice as large as one of those placed at the occiput; and the bud-like, rounded shape of the male hypopygium, which is larger in proportion to the size of the animal. Length of the body, 13 mm.; of the proboscis, 10 mm.; of the wing, 15 mm." This description was drawn on a male and female from Mazoe, Mashonaland (Southern Rhodesia), in the British Museum. Later, Lichtwardt recorded as *S. gracile* two females from Barberton, Transvaal, in the South African Museum (Entom. Mitteil. Berlin, IX, 1920, p. 97). Bezzi (Ann. South African Mus., XIX, 1924, p. 171) does not appear to have seen it.

I have referred to *S. gracile* one female and two males of Cloudlands, 6,000 ft., Vumbu Mts., Southern Rhodesia, 6 to 17 April, 1923 (without collector). It must be stated, however, that the description quoted above does not allow a positive identification, so that I feel justified in giving some additional data that might help in separating *S. difficile* from what I take to be *S. gracile*.

The measurements of the three specimens before me are as follows:

Female. Length not including ovipositor (to apex of tergite 4), 11.5 mm.; greatest width of abdomen, 5.7 mm.; length of proboscis, 10.5 mm.; length of wing, 14 mm.; width of wing, 4 mm.

Males. Total length, 11 and 11 mm.; greatest width of abdomen, 5.5 and 5 mm.; length of proboscis, 11 and 10 mm. length of wing, 13 and 12.5 mm.; width of wing, 4.2 and 4 mm.

In these examples the proboscis may therefore be said to be about as long as the body. Quite apart from individual variation, a certain latitude should be allowed in judging these relative lengths, as the body length certainly changes after death, while

the proboscis is to some extent retractile. Lichtwardt's measurements seem to indicate that in his specimens the proboscis was considerably shorter than the body, but this may be deceptive. It is not stated whether the measurements referred to the male or to the female, and, if the latter was measured, whether the body length includes the ovipositor.

In the Cloudlands female the integument is generally black; face, antennæ, palpi, and legs rather bright reddish clove-brown; the femora more yellowish brown. The long pilosity is greyish white ventrally; black dorsally, even on the dorsum of thorax and scutellum; on the dorsum of the abdomen there is a mixture of a few, shorter, white hairs. The pruinescence is dull all over, cinereous white ventrally, very dark greyish brown dorsally. The abdomen is not spotted. Face more prominent than in *S. difficile*, more as in *S. arnoldi*. Ocelli in a short isosceles triangle, as in *S. difficile*, but the anterior ocellus is larger, being distinctly twice the size of a posterior ocellus and occupying a little more than one third of the width of the front. The antennæ (Fig. 1c) are shaped much as in *S. difficile*, the third segment being slender, pear-shaped and over twice as long as wide at base; but the arista is considerably longer than the whole antenna and three-jointed. The legs are relatively thinner and the lamellæ which terminate the ovipositor narrower than in *S. difficile*. The sixth longitudinal vein is perfectly straight before the apical curve.

The two males are structurally alike and differ mainly from the female in the usual sexual peculiarities (wing much widened at anterior margin, beyond the middle; front much narrowed above so that the anterior ocellus occupies nearly the whole width; abdomen ending in a bluntly swollen hypopygium). The integument of scutellum and dorsal side of abdomen is to a large extent clove-brown. The long, black pilosity of dorsum of head and thorax shows a tendency to be russet brown, especially on the front and the scutellum. The third antennal segment is a little shorter than in the female, but still at least twice as long as wide at base.

*Key to the Known Species of Stenobasipteron.*

1. Wings relatively short (7.5 mm.); with a short, but chitinized axillary vein, bent at an angle in the middle. Proboscis shorter than body (4.5 mm.). Ocelli of same size, in an equilateral triangle. Front (♀) a little narrower than one eye. Small species (7 mm.) (♂ unknown). . . . .  
*S. minimum* Bezzi.  
 Wings much longer than body, with the axillary vein hardly distinguishable, not chitinized, straight. Front of female much narrower than one eye. Larger species. . . . . 2.
2. First basal cell with a "bulla" near the base of second longitudinal vein.<sup>1</sup> Ocelli of nearly same size, in an isosceles triangle. Style of antenna three-jointed. Proboscis much longer than the body (24 mm.). Large species (17 mm.)  
*S. wiedemanni* Lichtwardt.  
 First basal cell without "bulla." Medium-sized species (10.5 to 13 mm.) . . . . . 3.
3. Proboscis much longer than the body (14.5 to 16 mm.). Third antennal segment short, slightly over one and one-half times as long as wide; style three-jointed, about twice the length of the antenna. Length (♀): 10.5 to 11 mm. (♂ unknown). . . . . *S. arnoldi*, sp. nov.  
 Proboscis about as long as the body or a little shorter. Third antennal segment over twice as long as wide at base. . . . . 4.
4. Style two-jointed, about as long as the whole antenna. Anterior ocellus (♀) occupying a little less than one-third of the width of the front. Length (♀): 11.5 mm. (♂ unknown) . . . . . *S. difficile*, sp. nov.  
 Style three-jointed, much longer than the whole antenna. Anterior ocellus (♀) occupying a little over one-third of the width of the front. Length (♀, without ovipositor): 11.5 mm.; (♂): 11 mm. . . . . *S. gracile* Lichtwardt.

<sup>1</sup>This bulla probably corresponds to the minute swellings of the wing membrane known as "nygmata" in certain Neuroptera, Trichoptera, Panor-pata, and Hymenoptera. They are apparently not known in other Diptera. See W. T. M. Forbes, Ent. News, XXXV, 1924, pp. 230-232, Pl. V.

### Nycterimyia Lichtwardt

This extraordinary genus of flies is at present known in seven species: *N. dohrni* (Wandolleck) of Sumatra, Mafor,<sup>1</sup> and the Andaman Islands; *N. horni* Lichtwardt, of Northern Queensland; *N. kertészi* Lichtwardt, *N. fenestro-clatrata*, and *N. fenestro-inornata* Lichtwardt, of Formosa; *N. capensis* Bezzi, of Natal; and the New Guinean species described below. Although all species are closely allied, the distribution of the genus is extremely discontinuous.

The structure of the antennæ appears to be quite different in *N. papuana* from what has been described in other species. Of *N. dohrni*, Wandolleck (Entom. Nachricht., XXIII, 1897, p. 251) wrote originally: "Fühler 3-gliedrig, gelb, drittes Glied stabförmig mit welligen Conturen; and der Spitze trägt es ein ganz kurzes, feines, durchsichtiges Tasthärchen." Lichtwardt (Deutsch. Entom. Zeitschr., 1909, p. 647) says of the same species: "An den Fühlern ist das dritte Glied nach vorn verbreitert und mit einer stiftartigen, starken, apikalen Borste versehen." Bezzi (Ann. South African Mus., XIX, 1924, p. 169) describes the antennæ of *N. capensis* as "very short, with the third joint rounded and smaller than the preceding one; they are pale yellowish like the rather thick style, which is twice as long as the antenna." In my example of *N. papuana* (Fig. 2a), the third joint is extremely slender and ends in a narrower, seta-like portion, although no trace of suture could be discovered between the basal and apical sections. It agrees therefore best with Wandolleck's account, but I can not find a differentiated tactile hair at the tip. I am inclined to believe that the "thick style" in Bezzi's description of *N. capensis* represents the true third antennal segment, while his "third joint" is what I describe as the second segment.

#### *Nycterimyia papuana* sp. nov.

Type male from "Baie du Geelvink, New Guinea," (Raffray and Maindron Coll., 1878). In the collection of the Paris Museum.

<sup>1</sup>This appears to be a misspelling for Mapor, one of the Rhio Islands, between Singapore and Sumatra.

A medium-sized, robust, brown black species, covered with a dull, reddish brown tomentum; legs and antennæ testaceous. Pilosity brownish grey on head and thorax; abdomen almost destitute of hairs. Wings long, deeply bisinuate along the posterior margin, deep reddish brown; an elongate and narrow hyaline streak in the fourth posterior cell and faint indications of hyaline in the center of the combined first and second posterior and of the second basal cells.

*Male.* Integument apparently black, though the body is so uniformly covered with tomentum that it is difficult to see the proper color. Antennæ and legs pale testaceous; coxæ more brownish; apical half of claws brownish black.

Head and thorax with abundant, long, erect, brownish grey pilosity, which is denser on the ventral side. Hairs of the abdomen very short and sparse, dark grey; somewhat more abundant and longer ventrally and on the sides of the second tergite. Coxæ and femora with moderately long, reddish grey hairs; the pilosity of tibiæ and tarsi much shorter, but of the same color. Head, thorax, and abdomen are covered with a dull, cinnamon red bloom. There are no traces of dull stripes on the thorax nor of spots on the abdomen; but the second tergite bears close to its base a deep, transverse groove, which is shiny except on the middle; in addition there is a short, transverse, shiny depression on the side of each of the tergites 2, 3, 4, and 5.

Head large, much flattened, a little broader than the thorax; semi-elliptical in profile and from above; kidney-shaped and nearly twice as wide as high when seen in profile. Front narrowly triangular, widest at the antennæ where it measures about one-half the width of the eye; the inner orbits strongly converging above, where they come extremely close together for a short distance below the anterior ocellus, though not actually touching. Vertex triangular. Ocellar protuberance quite prominent, short, deeply divided behind from the inner orbits which project a considerable distance beyond the occipital margin of the vertex. Ocelli large, of about the same size, placed in an equilateral triangle. Eyes bare, composed in their upper half of large facets which gradually merge into the much smaller ommatidia of the lower half. Antennæ (Fig. 2a) very small, placed a short dis-



tance from the inner orbits on the upper portion of the curved slope which leads into the deep transverse depression that separates the front from the face; basal segment short, much thicker than long, widened and crescent-shaped at the apex; second segment disk-shaped, almost circular from the side, as long as the first; third segment apparently fused with the style, the whole being over twice the length of the two basal segments together, extremely slender and narrow, strongly tapering from the basal third to the apex which is very sharply pointed. Front regularly curved from vertex to antennæ, below which it droops deeply into a very pronounced transverse groove sep-

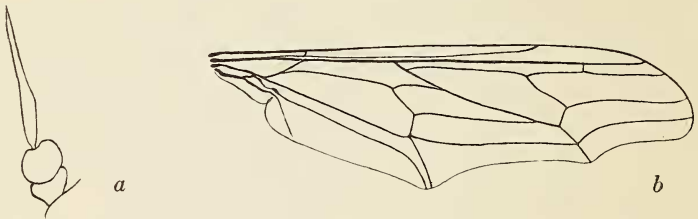


Fig. 2. *Nycterimya papuana*. a, right antenna drawn from the inner side; b, wing.

arating the face. Face sunken between the eyes, the median, shorter portion sharply divided from the lateral areas by deep, vertical grooves. Palpi and proboscis if present, extremely reduced and not to be distinguished among the long pilosity. Body broad and thickset. Thorax about as thick as, but shorter than, wide; its dorsum distinctly convex. Transverse suture well-marked on the sides over less than one-third of the width of the dorsum, obliquely continued behind to a short distance from the scutellum. Scutellum large, nearly elliptical, its posterior margin not separated from the disk. Abdomen broad and short, but little longer than wide, quite convex dorsally and somewhat curved down at the apex. The several segments are distinctly constricted, their apical portion being slightly swollen. The first tergite is very short and mostly covered by the scutellum. Second tergite much the longest, about as long as the two following tergites together; in its basal half it is broadly grooved transversally, the bottom of the channel being

shiny (except medially) and finely alutaceous; in addition there is on the posterior third of the tergite on each side a short, narrow and rather shallow, transverse groove, where the integument is also shiny and alutaceous. Third, fourth, and fifth tergites of about equal length, each on the sides, shortly behind the anterior margin, with a short, transverse shiny groove similar to that found on the hind third of the second tergite. The apical tergites are much shortened and somewhat retracted ventrally; they end in a prominent knob containing the large genitalia. Legs long and stout; the hind legs considerably longer than the anterior and middle pair. Fore and mid femora moderately and rather uniformly swollen, much thicker than the tibiæ; hind femora elongate club-shaped, distinctly swollen toward the apex. Tibiæ slender, not appreciably thickened at the apex. Tarsi short, narrower than the tibiæ.

Wings (Fig. 2b) long and moderately wide, over three times as long as the greatest width, which lies at the apex of the anal cell. The fore margin quite straight; the hind margin wavy between the tip of the fifth longitudinal vein and the apex of the wing: of the two, deep sinuations the proximal one, between the tips of the diagonal and fifth veins, is much the longest. Alula small, but quite well developed (as figured by Lichtwardt for *N. horni* and allies). Epaulet and basicosta clove-brown. Wings of a deep brown, opaque color, with a distinct cinnamon red tinge. A whitish hyaline, narrow, somewhat curved, longitudinal streak, with a pearly sheen, occupies the center of the fourth posterior cell (the cell immediately below the discal<sup>1</sup>); it begins quite a distance from the base of the cell, where it is widest, and gradually tapers to a short distance from the diagonal vein. There are no other well-marked hyaline spots; but the center of the combined first and second posterior and of the second basal cells is distinctly subhyaline and there is even a faint indication of a hyaline area in the second basal cell. The two wings are exactly alike in this respect. Veins bright reddish

<sup>1</sup>In *Nycterimya* there are only four posterior cells differentiated. To make the nomenclature of the wing homologous with that of the majority of Nemestrinidae which have five posterior cells, it is necessary to assume that the first and second are fused; the cell here called the fourth then corresponds to the cell of the same name in *Prosoeca*, for example.

brown, darker basally. Venation as in the other species of the genus: in details it agrees best with Lichtwardt's figure of *N. kertészi* (Entom. Mitteil., I, 1912, Pl. II, fig. 2), but the short cross-vein which unites the first and second longitudinals is much farther removed from the long cross-vein connecting the second and third longitudinals. It should also be noted that the auxiliary vein (or subcosta), which both Wandolleck and Lichtwardt figure as uniting with the first longitudinal about the middle of the wing, really continues its course independently to near the base, as in other Nemestrinidæ; furthermore it is connected, a short distance from the base, with the costa by a humeral cross-vein, apparently overlooked by these authors. The apex of the discal cell is far removed from the base of the combined first and second posterior cells. The costa extends to beyond the tip of the fourth longitudinal vein, whence it gradually fades away to the apex of the wing.

Total length, 11 mm.; greatest width of abdomen, 5 mm.; length of wing, 13.5 mm.; greatest width of wing, 4 mm.

The species is closely allied to *N. dohrni* and *N. horni*, but differs conspicuously in the markings of the wing.